

Application No.: 10/076003

Case No.: 57181US002

**REMARKS**

Claims 1 – 40 are pending. Claims 1 – 19 and 34 – 38 have been withdrawn from consideration. Claim 20 is being amended.

Applicants are hereby amending claim 20 to include the limitation that one of the patterned first electrode layer and the patterned second electrode layer defines source and drain electrodes, and one of the patterned first electrode layer and the patterned second electrode layer defines a gate electrode (basis therefor being found, for example, in original claims 21 and 22).

**Rejection Under 35 U.S.C. § 102**

Claims 20 and 39 – 40 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,937,272 (Tang). The rejection is traversed for the following reasons.

Tang discloses a method of forming organic electroluminescent (EL) displays comprising vapor depositing organic EL medium through an aperture mask. The vapor deposition step can include, for example, transferring by optical or direct thermal means the organic EL medium from a precoated donor sheet to bottom electrodes through apertures in the aperture mask (see, for example, claim 2), providing a pattern of absorbers and a layer of organic EL medium precoated on a mask support surface and selectively transferring the organic EL medium from the mask to the bottom electrodes (see, for example, claim 8), or forming a uniform heat insulating layer upon which is disposed a pattern of absorbers and a layer of organic EL medium on a mask support substrate and selectively transferring the organic EL medium from the mask to bottom electrodes (see, for example, claim 15).

Applicants disclose an integrated circuit (IC) comprising a deposition substrate, a patterned first electrode layer formed adjacent the deposition substrate, a patterned organic semiconductor layer formed adjacent the first electrode layer, and a second patterned electrode layer deposited adjacent the organic semiconductor layer, wherein the patterned first electrode layer, the patterned organic semiconductor layer, and the second patterned electrode layer are each defined by a repositionable aperture mask, and wherein one of the patterned first electrode layer and the patterned second electrode layer defines source and drain electrodes, and one of the patterned first electrode layer and the patterned second electrode layer defines a gate electrode.

Application No.: 10/076003

Case No.: 57181US002

Tang does not teach or suggest organic EL devices wherein one of the patterned first electrode layer and the patterned second electrode layer defines source and drain electrodes, and one of the patterned first electrode layer and the patterned second electrode layer defines a gate electrode. Applicants' claims are therefore novel and patentable over Tang. Applicants respectfully request that the rejection under § 102(b) based on Tang be withdrawn.

**Rejections Under 35 U.S.C. § 103**

Claims 21 – 22 and 25 – 33 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Tang in view of U.S. Patent No. 6,087,196 (Sturm et al.). The rejection is traversed for the following reasons.

Sturm discloses a method of fabricating organic light emitting diodes (OLEDs) including applying source and drain electrodes by evaporation through shadow masks and ink-jet printing luminescent polymer films and gate electrodes.

The Examiner has asserted that it would have been obvious to one skilled in the art to modify the invention of Tang with the first and second electrodes, as taught by Sturm, so as to clearly define the source, drain, and gate electrodes in the transistor.

The combination of references does not appear to teach or suggest all of Applicants' claim limitations, however. Neither reference appears to teach or suggest a patterned gate electrode layer defined by a repositionable aperture mask. Sturm discloses patterned source and drain electrodes defined by a repositionable aperture mask, but Sturm does not appear to teach or suggest a patterned gate electrode layer defined by a repositionable aperture mask.

In addition, neither Tang nor Sturm teach or suggest multiple IC layers patterned by repositionable aperture masks, or how such patterning would be accomplished. Tang appears to disclose only organic EL medium patterned by a repositionable aperture mask. Sturm appears to disclose only source/drain electrodes patterned by a repositionable aperture mask. Neither reference teaches how to pattern more than one layer with a repositionable aperture mask. ICs have a complicated structure. Although ICs typically cover a large area, small feature sizes and precision are required within the IC. Alignment of IC layers is therefore crucial. Neither of the references teach or suggest that alignment of multiple layers patterned with repositionable aperture masks could be achieved. In fact, Sturm states, at column 4, lines 53 – 59, "It was

Application No.: 10/076003

Case No.: 57181US002

difficult to fabricate devices directly on top of the polymer dots fabricated by ink-jet printing because of the difficulty in aligning a shadow mask for metal cathode formation directly over a polymer dot. Therefore to fabricate test devices the ink-jet printer was operated in a mode to create a continuous sheet of polymer rather than discrete dots." Sturm also notes that it is difficult to extend aperture mask techniques to large areas (see, for example, column 1, lines 58 – 60). It therefore would not have been obvious to one of skill in the art that multiple patterned layers could be properly aligned using aperture masks.

Furthermore, one skilled in the art would not combine Tang and Sturm as suggested by the Examiner. Tang's upper and bottom electrodes are part of an OLED. OLED electrodes, which are typically an anode and a cathode, are not the same as transistor electrodes, which are source/drain electrodes and a gate electrode. One skilled in the art would not therefore replace the OLED electrodes of Tang with the transistor electrodes (that is, source/drain and gate electrodes) of Sturm. Claims 21 – 22 and 25 – 33 are therefore unobvious and patentable over the combination of Tang and Sturm, and Applicants respectfully request that the rejection under § 103(a) be withdrawn.

Claims 23 – 24 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Tang. The rejection is traversed for the following reasons.

The Examiner has asserted that it would have been obvious to one skilled in the art to modify the gap between the source and drain electrodes of Tang with the specific range claimed by Applicants.

Tang does not, however, teach or suggest organic EL devices wherein one of the patterned first electrode layer and the patterned second electrode layer defines source and drain electrodes, and one of the patterned first electrode layer and the patterned second electrode layer defines a gate electrode. For this reason and for the reasons discussed above, Applicants claims are unobvious and patentable over Tang. Applicants therefore respectfully request that the rejection under § 103(a) based on Tang be withdrawn.

#### **Concluding Remarks**

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application is respectfully requested.

Application No.: 10/076003

Case No.: 57181US002

Respectfully submitted,

March 14, 2005

Date

By: Lisa P. Fulton

Lisa P. Fulton, Reg. No.: 55,195

Telephone No.: (651) 733-1260

Office of Intellectual Property Counsel  
3M Innovative Properties Company  
Facsimile No.: 651-736-3833

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☒ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**